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ABSTRACT

This study examined the teaching practices of Maria, a special educator who worked with students who had multiple disabilities, were nonverbal, and used augmentative and alternative communication (AAC). It highlighted the complex, interdependent, and dynamic nature of teacher knowledge, beliefs, and practices and evaluated what Maria knew and believed that led her to teach as she did. Data were collected via classroom observations, semi-structured interviews with Maria and members of her classroom team, and analysis of pertinent documents. Results indicated that Maria's beliefs about her students, her role and responsibilities as their teacher, and the nature of knowledge interacted to define her teaching practices. Maria's beliefs about students were strongly interventionist. The interventionist nature of her beliefs provided her with in-depth knowledge of her students characteristics, needs, and achievements. Her beliefs were broadly applicable to learners, irrespective of the nature of their differences. Ultimately, the interventionist nature of her teaching revealed her students competencies demonstrating that, despite their unique characteristics and significant barriers to communicating and learning, students who used AAC benefited from teaching practices that effectively supported student achievement. (Contains 39 references.) (SM)

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A Case Study of an Exemplary Teacher's Beliefs

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A Case Study of an Exemplary Teacher's Beliefs, Knowledge and Teaching Practices

> *I learned early on how lucky I was to work with these kids. Certain teachers would think they weren't lucky to work with this population. I've always felt really lucky to work with these kids because you're sort of unlocking the secret in a way. This personality, this person is able to develop and bloom and come out and if I can have a small role in that, well, I just feel very privileged (Interview, Maria, June 14).*

These are words spoken by a teacher. Maria teaches students who have multiple disabilities, are non-speaking, and use augmentative and alternative communication (AAC). Her words reveal deeply held beliefs about her students, her role and responsibilities as their teacher, and the nature of learning. As it turns out, Maria's beliefs are fundamental, indeed, pivotal in developing her teacher knowledge and in defining her teaching practice. Moreover, while Maria teaches students who have unique characteristics and needs, her teaching practices reveal what is not unique and particular to her students. Through Maria's teaching we gain an understanding of the inherent capabilities of her students. This paper describes our qualitative case study inquiry into the nature of an experienced special education teacher's practice, further substantiating the complex, interdependent, and dynamic nature of teacher knowledge, beliefs, and practices.

Introduction

It is well known that teacher attributes and competencies interact with student attributes and aptitudes to exert a powerful influence on learning (Wang, Haertel, & Walberg, 1994). The

multi-faceted beliefs that teachers hold about teaching, subjects, and their students influence their teaching practices. As Pajares (1992) asserts,

> Beliefs are instrumental in defining tasks and selecting the cognitive tools with which to interpret, plan, and make decisions regarding such tasks; hence they play a critical role in defining behaviour and organizing knowledge and information"(p. 325).

Teaching behaviours are also influenced by the internal skills and ability teachers feel they possess (Gibson & Dembo, 1984; DeForest & Hughes, 1992; Jordan, Kircaali-Iftar & Diamond, 1993; Stanovich, 1994; Stanovich & Jordan, 1998). In addition to beliefs, researchers have described several types of knowledge which influence teaching practices (Shulman, 1986, 1987; Englert, Tarrant, & Mariage, 1992; Englert & Mariage, 1996; Fenstermacher, 1994; Hillocks, 1999).

We began to consider the application of the research literature on teacher beliefs and knowledge to teaching students whose characteristics and needs differ substantially from typically developing and achieving students. In particular, we wondered what knowledge and beliefs are effective, indeed requisite, to teaching students who have multiple disabilities, are non-speaking, and use AAC? Indeed, there is a lack of research which carefully documents effective teaching practices related to teaching students who use AAC. We are not just referring to accounts of the specific approaches, strategies, materials, and tools a teacher might use, but detailed accounts that include their reasons for doing what they do; the particular teacher characteristics that underlie effective teaching practices with this student population. As Ethell & McMeniman (2000) argue, "learning to teach effectively requires that.... teachers access the minds, not only the observable behaviours, of effective teachers" (p. 87). In order to gain insight

into the relationship among teacher beliefs, knowledge, and practices, we believed we needed to spend prolonged time with a teacher in her classroom, getting to know the details of and the reasons that underlie her teaching practice with her students. We also believed that we might learn more about this relationship by studying the teaching practices of an experienced teacher of students who use AAC. We approached Maria, a teacher who we know on a professional basis and who is regarded by her teacher colleagues and consultants in the field of AAC to be an effective, if not "exemplary", teacher of students who use AAC. We were interested in understanding the particulars of Maria's teaching practice. We were interested in not only the moves she made with her students, but as Ethell & McMeniman advise, the thinking and beliefs that guide her moves. In essence, we wanted to "hold a lens close to the actualities of [Maria's] practice" (Greene, 1986, p. 80).

Research Question

The purpose of this study was to develop an understanding of the teaching practices of Maria as she worked with her students. Our first purpose was to learn something of the particular teaching approaches, strategies and materials that Maria used with her students. Our second purpose was to dig deeper into Maria's teaching practices by exploring how she creates, modifies, and interprets her work with her students within her particular classroom and school context. Our research question was broadly stated: What does Maria know and believe that leads her to teach her students as she does?

Participants and The Context

Maria

Maria has been a teacher for 21 years. She has worked in the field of AAC for 25 years. She has taught in regular classrooms and schools and in specialized schools and classrooms for students with physical disabilities who use AAC. She has been a teacher at her current school for 9 years.

The school is specialized, serving the children who are receiving treatment and services at a large urban rehabilitation centre. The underlying philosophy of the school is to integrate each student's education and therapy needs within the classroom setting. The goal of the educational program is to provide early, intensive integrated therapy and education in order to equip the students to function in their community schools.

Maria teaches in a communications classroom. The students who attend the communications classroom have complex physical needs and are, for the most part, nonverbal. The mandate of the communications classroom is to provide intensive support in assessing and developing each student's communication skills so that they are able to effectively express themselves and participate in learning.

The Students

Maria teaches six students who range in age from five to nine years: two boys and four girls. All of the students have cerebral palsy, a non-progressive motor impairment resulting from brain damage at birth. The students are not able to use some of the muscles or joints in their body. Each student uses a manual wheelchair for mobility. While two of the students have

limited use of their hands, for the most part, the students are dependent on adults for activities of daily living such as eating, drinking, dressing, bathing, and going to the toilet.

Maria's students are learning to use other means to communicate. They are being taught to use a voluntary movement (e.g., finger, fist, eyes, etc.) to point to symbols such as Picture Communication Symbols (PCS), Blissymbols, photographs, and words as a means of communicating. These symbols represent their expressive language: the vocabulary or words the students will use in order to communicate a variety of functions. The functions of communication range from expressing their needs and wants to demonstrating their understanding and learning. The students are not able to use traditional drawing and writing tools, such as pencils, pens, or crayons. Each student will eventually use computer technology for drawing and writing purposes. Therefore, in the communications classroom another goal for the students is access to and control of computer technology for writing, drawing, and learning.

The Program

Maria's main goal for her students is to develop their communication skills. For Maria, this means not only developing an appropriate communication book which will contain the picture symbols that represent the students' vocabulary, but also providing them with opportunities to learn to use their communication tools effectively with many people.

In addition to the primary emphasis on communication, there is a kindergarten-level academic focus on beginning literacy and numeracy concepts and skills. Circle time, show and tell, reading, math, music, art, and physical education are anchor activities in Maria's program. Maria integrates communication, language, and literacy concepts and skills into each of these

activities. The goals are achieved in consultation with the others on the classroom and school team.

The Team

Maria's teaching takes place within a specialized environment that yields many advantages including the convergence of services and expertise. Maria and her educational assistant have worked together for six years. Because of the multiple and complex needs of her students, Maria's classroom team also includes an occupational therapist, a physiotherapist, a speech language pathologist, and a therapy assistant. The therapists are shared amongst the other classrooms in the school and their time is scheduled accordingly. Maria typically has one therapist in her room at any given time. An occupational therapist, a speech language pathologist and a technologist from the rehabilitation centre's augmentative communication service provide consultation support to the team. The school psychologist joins the team as required and typically assesses each child before he or she leaves the program. Maria encourages parents to be involved in supporting their children's goals at home and by volunteering in the classroom. Recognizing the assistance which is required by her students, Maria actively recruits volunteers from the community to work within the class. Collaboration among the staff of the school as a whole is integral part of meeting the needs of the children.

Method

Data Collection

We followed accepted qualitative research methodology in this inquiry (Denzin & Lincoln, 1998; Glesne & Peshkin, 1992; Guba & Lincoln, 1998; Sandelowski, 1993). We

worked as participant-observers with Maria for 55 days over five months as she taught her students. Our interpretations of Maria's teaching were based upon triangulated data. This data included:

i) our observations of classroom activities and interactions in the form of detailed field notes;

ii) video recordings of over 100 hours of teaching events;

iii) 18 hours of semi-structured interviews with Maria (i.e., 9 interviews of approximately 2 hours each)

iv) 13 hours of semi-structured interviews with members of Maria's classroom team, including the parents of her students, an educational assistant, a variety of therapists, and administrators, teacher colleagues, and consultants; and

iv) analyses of documents, such as Maria's lesson plans, each student's Individual Education Plan, and related skill development charts.

Data Analysis

Glesne and Peshkin (1992) state, "Qualitative researchers are interpreters who draw on their own experiences, knowledge, theoretical dispositions, and collected data to present their understanding of the other's world" (p. 153). Our interpretations and understandings of Maria's teaching developed through our experiences as special educators, consultants, and researchers in the field of AAC. Our understanding also evolved through prolonged observation, ongoing discussions with Maria and her classroom team, and analysis of the triangulated data in light of our experiences, the theoretical dispositions, and the collected data. The research literature served as the theoretical framework for analyzing Maria's beliefs (Copeland, Birmingham, DeMeulle, D'Emidio-Caston, & Natal, 1994; DeForest & Hughes, 1992; Gibson & Dembo, 1984; Jordan-Wilson & Silverman, 1991; Jordan, Kircaali-Iftar & Diamond, 1993; Jordan,

Lindsay & Stanovich, 1997; Marshall, 1992; Nespor, 1987; Pajares, 1992; Stanovich, 1994). We were particularly interested in examining Maria's beliefs in light of the "Pathognomonic-Interventionist Model" (Jordan-Wilson & Silverman, 1991; Jordan, Kircaali-Iftar, & Diamond, 1993). We also drew upon the research literature on (a) teacher knowledge (Hillocks, 1999; Shulman, 1986, 1987) and (b) expert or exemplary teaching (Bereiter & Scardamalia, 1993; Berliner, 1994; Englert, Tarrant & Mariage, 1992; Meichenbaum & Biemiller, 1998; Sternberg & Horvath, 1995). As the various data emerged, we constructed particular meanings based upon the research literature and by conducting several theme analyses of the field notes and the interview transcripts. Maria validated the interpretations. Indeed, our conversation continued long after our stay in her classroom.

The Findings

This study further substantiates the complex and interdependent link among teacher beliefs, knowledge, and teaching practice. Maria's particular beliefs about her students, her role and responsibilities as their teacher, and the nature of knowledge underlie the instruction and learning that we witnessed in her classroom. Maria's beliefs about her students became apparent as strongly 'interventionist' (Jordan-Wilson & Silverman, 1991; Jordan, Kircaali-Iftar, & Diamond, 1993; Jordan, Lindsay, & Stanovich, 1997; Stanovich & Jordan, 1998). The nature of Maria's beliefs plays a pivotal role in her evolving knowledge, in particular, her pedagogical-content knowledge or wisdom of practice (Shulman, 1987). Moreover, the study reveals that while Maria teaches students whose needs and characteristics are substantially different from typically-achieving students, her multi-dimensional beliefs lead her to teach in ways which

parallel accounts of other interventionist teachers (Jordan, Lindsay & Stanovich, 1997; Jordan & Stanovich, 1998, 1996). Further, her teaching practices are closely aligned with those which are described in the expert or effective teaching literature (Bereiter & Scardamalia, 1993; Berliner, 1994; Englert, Tarrant & Mariage, 1992; Meichenbaum & Biemiller, 1998; Shulman, 1986, 1987; Sternberg & Horvath, 1995). Thus, Maria's beliefs appear to be broadly applicable to learners, irrespective of the nature of their differences. Exemplars of Maria's teaching practice and her comments during our discussions are used to illustrate the multi-dimensional and interactive nature of her beliefs, knowledge and practice.

Beliefs about Her Students

> *The hardest part for these kids is that their vocabularies are so inadequate to capture the thoughts that are going through their heads (Interview, Maria, June 7).*

Fried (1995) states, "A teacher who anticipates creativity and hidden talents in her students will greet a class quite differently from one who looks for deficits and defects" (p. 154). Maria's stance towards her students is one of optimism and possibilities. She believes that each student has a great deal to say and can learn to communicate effectively. Moreover, Maria believes that each student has the potential to become literate.

> I really do believe these children have the potential to become literate. That's why I'm so driven to give them as much foundation as I can (Interview, Maria, June 14).

Ultimately, Maria believes that each of her students has the potential to realize his or her independence by becoming competent in communication and literacy. Her hopefulness is reflected in her high expectations for each student:

> Look at the child. Don't underestimate the child's cognitive abilities. Start with the child. Don't be afraid. So often people are just afraid of these children and it causes a lot of anxiety. Don't underestimate them. Don't have lower expectations because they use AAC (Interview, Maria, June 14).

But, Maria's hopefulness "rests not in idealized images, but on a detailed and concrete perception of children's lives" (Elbaz, 1992, p. 426). She looks beneath the surface of her student's disabilities -- beneath the accompanying hardware. She looks beyond all of this and sees human feeling and ability.

> Imagine yourself in the position of going to meet your baseball idol and having no way to communicate! Can you imagine how devastating that is? (Interview, Maria, April 5).

Maria's students are children first. By looking deep within her students, she comes to know her students and believe in their potential.

> I am motivated to work with AAC users because they deserve a chance to develop their minds and to express their intelligence just as other children do (e-mail, Maria, June 27).

Her detailed and concrete knowledge of her students not only underlies, but also sustains her hope for them, her optimism and belief in their potential.

Maria's optimistic stance toward her students plays out each day in her classroom. Her beliefs form the foundation for the goals she establishes for her students: competence in communicating, reading and writing, and ultimately, independence. Her beliefs also determine the instructional program she develops for each student and her moment-to-moment interactions with them. For example, Maria expects her students to read stories on their own while she plays a supporting role. She engages them in the process of doing just that:

> Read the title to yourself. Read the sentences. [She pauses while each student 'reads' the title of their book.] When you're ready, you can let me know and I'll turn the page.
>
> And Bethany's reading today. Okay, so Bethany, you need to sit up nice and tall [Maria positions Bethany's head upright in the middle of her headrest.] Okay, Bethany, you say the word and I'll say it. You read the word and I'll say it. You think it. You think it even if you can't say it with your voice. I want you to think it in your head. Okay? Because that's the same as reading. You're reading even if you're just thinking of the word. Okay? Even if you can't say it out loud, if you're thinking what it is, you're reading! (April 16)

Maria allows Bethany to *direct* the reading, waiting for her to look at the words before Maria repeats them aloud. Thus, Bethany is in charge. Bethany experiences independence in reading the story. And together, Maria and Bethany model the reading process for all of the students. For Maria, her students *can* read. For Maria's students, they *are* reading. In addition to her optimist beliefs about her students, Maria's beliefs about her role as teacher underlie her teaching practices.

Beliefs About Her Role and Responsibility to Her Students

> *I, as an individual teacher, can have an influence right now (Interview, Maria, June 7).*

Maria's words along with the teaching practices which we observed in her classroom are potent expressions of her beliefs in her role and responsibility as a teacher of these students. We analyzed this set of teacher beliefs according to the Pathognomonic-Interventionist Model (Jordan-Wilson & Silverman, 1991; Jordan, Kircaali-Iftar, & Diamond, 1993; Jordan, Lindsay, & Stanovich, 1997; Stanovich & Jordan, 1998). This model defines one set of teacher beliefs and assumptions as lying along a continuum. Teacher beliefs residing at one end of the continuum are referred to as "pathognomonic". That is, the difficulties that a student experiences exist

within the child in the form of a pathological state that can be named (hence, pathog-nomonic). The goal is to refer the student to another professional for diagnosis (i.e., determine pathology) and possible remediation. Educational practices based upon pathognomonic beliefs are characterized by few interventions, little interaction with other professionals and parents, and in general a failure to link assessment and the curriculum (Stanovich & Jordan, 2000). In general, classroom teachers who hold pathognomonic beliefs assumes little, if any responsibility for instructing students who are having learning or behavioural difficulties.

At the other end of the continuum lies what are referred to as, "interventionist" beliefs. Such teachers believe that the difficulties a student experiences result from interactions between the student and his or her instructional environment. These teachers tend to implement interventions before making referrals, follow a team-based approach, involve parents, and link assessment processes and information to instructional procedures. Research indicates that teachers who hold interventionist perspectives engage in more academic interactions with their students and are more persistent in actively assisting students to construct understanding (Jordan, Lindsay, & Stanovich, 1997). These characteristics are also identified in the literature on effective or expert teaching (Bereiter & Scardamalia, 1993; Berliner, 1994; Englert, Tarrant & Mariage, 1992; Meichenbaum & Biemiller, 1998; Sternberg & Horvath, 1995).

Maria's beliefs about her teaching role and responsibilities emerged as strongly interventionist. Rather than believing that her student's difficulties in learning reside solely with them, Maria believes that *she and the learning environment she creates* for her students are responsible for their learning. Rather than deferring to 'specialists' to support her students, Maria

assumes responsibility and strives to organize her instruction in ways that support her students' growth toward the achievement of their potential. She actively engages her students in meaningful dialogue, reading and writing experiences because (a) she believes that her students can learn these things and (b) she believes it is her responsibility to ensure that they have opportunities to learn these things.

The internal skills and abilities a teacher feels s/he possesses influence teaching behaviours (Gibson & Dembo, 1984; Jordan, et al, 1997). While Maria strives tirelessly to meet the needs of each of her students, she is well aware of her own strengths and limitations. She explains,

> The children are very complex. I can't possibly have all the knowledge that I would need to have. I come at it from my own narrow perspective. On the team, everybody comes at it from their own narrow perspective. But by sharing, we learn from each other. We share the responsibilities. We sometimes share the pain. In situations where maybe we don't feel we're being effective we share so that you don't feel as one person, 'Aahh! I've got the weight of the world!' And we share the joy of it.... Also we support each other. I really believe we support each other as a team and I think that's important (interview, June 21).

She seeks information and resources if she feels she does not have the knowledge or skill to meet her students' needs.

> If I have students who pose challenges I have not encountered before...I have to find outside resources to help me figure out how to program for them (E-mail, Maria, Jan. 27).

Thus, Maria assumes direct responsibility for the students she teaches. This responsibility includes seeking resources and supports when she feels she does not have the capabilities or full knowledge of their characteristics and needs. Maria links assessment information to her teaching. Information is considered in planning and implementing an appropriate and effective program

for her students. Maria's beliefs about the nature of knowledge are also inherent in the teaching practices which we witnessed in her classroom.

Beliefs about Knowledge

> *You know as well as I do that they're [literacy and communication] so interconnected.... It's very difficult to make those kinds of divisions because if someone becomes literate then their communication will change for the better (Interview, June 21).*

"Beliefs and assumptions about the nature of classroom learning have important consequences for opportunities that are provided for learning, for what is learned, for the kind of knowledge that individuals will be able to deal with, for how knowledge is used, and for how students view themselves" (Marshall, 1992, p. 5). While Maria acknowledges, "It's just so easy to do everything for the kids all the time!" (Interview, Maria, May 3), she believes that her students must be actively engaged in activities if they are to learn. She believes that her students must be actively involved in *constructing* their knowledge and understanding and in acquiring skills. Maria's students are not passive observers or listeners in the classroom. Indeed, dialogue figures prominently in Maria's classroom: a remarkable feat in a classroom of non-speaking students! Maria asks questions, expects her students to respond, and is patient in waiting for their response. She also provides her students with opportunities to ask questions. Maria's students "actively construct [their knowledge] in meaningful, multiply connected, contextually relevant networks that allow for deeper and interrelated understandings" (Marshall, 1992, p. 2). During the typically lengthy reading lessons, each student remains remarkably attentive and engaged. During the daily removal of outdoor clothing, Maria supports her students' active engagement in

the process of directing someone to remove their outdoor wear. Maria believes that her students will learn by being actively engaged, actively participating through communication. She organizes her teaching in ways that engage her students in constructing their knowledge and learning skills.

Maria believes that the development of language, communication, and literacy are intricately connected and interdependent. This is remarkable since her students have only recently begun to communicate through alternative means. In Maria's classroom instruction is embedded within meaningful, integrated activities which span areas within and across the curriculum (Englert, Raphael, & Mariage, 1994). The students prepare birthday and thank you cards. They create books based on their many school and community experiences. They prepare a special pudding for a classroom visitor by reading from a symbol-embellished recipe. They "read" the words of songs during music lessons and school assemblies. They use their communication books to tell their news from home while someone listens and prints it for them. These activities provided authentic experiences in which her students learn concepts and skills related to communicating, reading, and writing.

Indeed, it is difficult to distinguish between communication and literacy in Maria's classroom. She infuses language, communication and literacy experiences seamlessly into her instructional program. Moreover, Maria believes that her students will learn about language, and learn to communicate and learn to read and write by being engaged in authentic, purposive activities and experiences, many of which arise naturally in the course of the day and school year.

At the same time, though, Maria's classroom program reflects activities in which concepts and skills are directly taught. Maria believes that if her students are to become proficient communicators, readers and writers, then language, communication, and literacy concepts and skills need to be taught explicitly and directly. Letter knowledge and phonemic awareness are taught directly through the Jolly Phonics program and weekly alphabet puppet shows. These skills along with decoding and word recognition and spelling and writing are taught directly and reinforced in the reading lessons, show and tell activities, language experience activities, board games, and indeed, in the undressing routine as she prompts her students to find each other's cubbyholes. Thus, Maria provides systematic, explicit instruction in communication, language, literacy concepts and skills on a daily basis. She teaches the skills in separate lessons and within the context of other activities in the classroom. Maria does not leave it up to her students to learn from these activities. She incorporates direct skill instruction into authentic, meaningful activities.

Further, she delivers instruction based on her students' individual learning needs. Maria wholly engages her students in activities and interactions. Maria's students are involved in learning procedural forms of knowledge: learning to communicate *by* communicating; learning to read and write *by* reading and writing, learning to become independent by engaging in activities which promote independence. Maria believes her students will learn to communicate and to read and write by engaging in authentic communication interactions and learning activities.

At the core of the teaching practices and learning activities which we witnessed in Maria's classroom are her optimistic beliefs about her students, her "interventionist" commitment to her role as their teacher, and her belief in the constructive nature of knowledge. Together, these multi-dimensional beliefs are instrumental in developing Maria's teaching knowledge, in particular, her pedagogical-content knowledge: her "ways of representing and formulating the subject that make it comprehensible to others" (Shulman, 1986, p. 9).

Maria's Developing Knowledge

> *Look at the child. Don't underestimate the child's cognitive abilities. Start with the child (interview, Maria, June 14).*

According to Shulman (1986, 1987), teachers possess several categories of knowledge. These categories include knowledge of (a) content or subject matter, (b) general pedagogy, (c) curriculum, (d) pedagogical-content, (e) learner characteristics and needs, (f) educational contexts, and (g) educational ends, purposes and values. Knowledge of learner characteristics and needs is given only fleeting mention in Shulman's (1987) Model of Pedagogical Reasoning and Action. In fact, the teacher knowledge literature appears to limit the types of teacher knowledge, downplaying or neglecting knowledge of student characteristics and its impact on making pedagogical adaptations to accommodate student learning. Indeed, Shulman states, "the activity of teaching is rarely engaged with a single student at a time. This is a process for which the special term 'tutoring' is needed" (p. 17). Yet, recent research indicates that even in heterogeneous classrooms, exemplary teachers are able to spend more time with individual learners and adapt their instruction to the individual student's level and rate of learning (Jordan, et al, 1997; Stanovich & Jordan,

1998; Jordan & Stanovich, 1996; 1998). The present study further illuminates the influential role of knowledge of learner characteristics and needs in developing pedagogical-content knowledge.

"Start with the child". Maria *knows* her students. She knows her students on at least three levels. She understands child development, in general. She knows the attendant characteristics and needs of students who have multiple disabilities and use AAC. And, Maria knows her students as *children*, as Bethany, and Mark, and Scott. She knows each child as a unique individual who possesses talents, idiosyncrasies, personalities, and personal histories. This comprehensive knowledge of her students is requisite to the development of Maria's pedagogical-content knowledge: knowing what and how to teach each of her students. Furthermore, Maria's beliefs, as witnessed through her teaching practice, provide her with the *means* to know her students which, ultimately, serves to develop her pedagogical-content knowledge. As Hillocks (1999) maintains,

> Because optimistic teachers assume… that students will learn under appropriate circumstances, and because they understand that students must be engaged in the construction of their own knowledge, they set about developing activities that will allow students to do just that. Because their activities allow students to respond frequently in class to a variety of factors, they are also privy to what students are doing in response to the activity and what they seem to be thinking. Given this openness, such teachers are able to evaluate progress, consider possible revision in the activity or the store of ideas available, and take action to facilitate change in their students even while they work (p. 132).

By actively engaging her students in learning activities and interactions, Maria gains knowledge of their capabilities, needs, and achievements *and* the effectiveness of her teaching. She explains,

> I guess I'm following their lead because they're showing me that they know their letter sounds, so it's time for some of them to move on. I'm kind of pushing the

> envelope there.....I want to push them further in terms of what they can attain within the course of the year (Interview, Maria, April 26).

Barth (2001) reminds us: "learning from experience is not inevitable. It must be intentional" (p. 65). Maria's learning is intentional. She attends to her students and follows their "lead", using her growing knowledge of her students in concert with her knowledge of subjects, the curriculum, and general pedagogy to adapt her instruction, thereby developing her pedagogical-content knowledge.

> The more experience that you get, it's scaffolding for you, as well. The more that you have something to relate [to], the more it relates to what you actually do, the more meaningful and the more of a payoff you get. It's just typical of learning (Interview, Maria, March 31).

Thus, Maria's own learning parallels her students' learning. Just as her students learn from the experiences which Maria provides, Maria learns from her teaching experiences which shape her evolving teaching knowledge. As Hillocks (1999) states,

> Like most other areas of teacher knowledge, pedagogical content knowledge appears not to be some body of pre-existing knowledge that teachers dip into, but knowledge constructed by the teacher in light of the teacher's epistemological stance and conceptions of knowledge to be taught ...learning theory, and students (p. 122).

Problem-solving, reflecting and collaborating play significant roles in developing knowledge, beliefs, and expertise (Bereiter & Scardamalia, 1993; Berliner, 1994; Copeland, et al, 1994; Gersten, Vaughn, Deschler, & Schiller, 1997; Schon, 1986, 1987; Sternberg and Horvath, 1995). Indeed, Copeland, et al (1993) argues "Reflecting on dilemmas stops when one believes the problem resides with the learner and not instruction" (p. 52). Maria's sense of responsibility and commitment to her students along with her belief in their capabilities and potential drive her

to engage in ongoing reflection and problem-solving. Close and regular collaboration with her classroom team and school colleagues provides the opportunities for Maria to reflect on her teaching practices relative to her students. This problem-solving, inquiry-based stance toward teaching serves to develop Maria's teacher knowledge and as will be described in the next section, further shapes her beliefs. As she so eloquently stated,

> "It's a real learning experience, teaching. It's more of a learning experience than a teaching experience (Interview, Maria, April 19).

Discovering the General in the Particular

> The paradoxical thing about anecdotal narrative is that it tells something particular while really addressing the general or the universal. And vice versa, at the hand of anecdote fundamental insights or truths are tested for their value in the contingent world of everyday experience (van Manen, 1997, p. 120).

Maria's students have varying unique characteristics and associated needs in multiple areas: physical, health, sensory, cognitive, communication, and emotional. We were therefore surprised to discover that her beliefs translated into her teaching practice reveal what is *not* unique and particular to her students. That is, while we have studied a particular teacher in a particular context with particular students, we believe that much of what we have learned, what we have described about Maria' beliefs and knowledge in the foregoing, about Maria's teaching can be generalized to all teaching. We have learned much that is universal to *all* teaching, irrespective of the particular teachers, students, and teaching contexts.

At the beginning of this paper, we stated that Maria's beliefs, knowledge, and teaching practices are closely aligned with those of other teachers who hold interventionist beliefs and of teachers who are regarded to be effective or expert (Bereiter & Scardamalia, 1993; Berliner,

1994; Englert, Tarrant, & Mariage, 1992; Hillocks, 1999; Jordan, et al, 1997; Meichenbaum & Biemiller, 1998; Sternberg & Horvath, 1995).

A synthesis of this literature reveals that such teachers:

1. establish high expectations for student achievement;
2. assume responsibility for student learning;
3. provide meaningful, authentic learning experiences;
4. engage students in constructing their own knowledge;
5. maximize their instruction time;
6. teach certain knowledge and skills directly;
7. consider each student's students' affect, social, behavioural, cognitive, and physical characteristics and needs;
8. understand that students learn best at their learning threshold;
9. calibrate their instruction on a moment-to-moment basis; and
10. believe that the ultimate goal for students is self-regulated learning and independence

These characteristics are fundamental and universal to academic development and school success. They appear to be solid premises upon which teachers who hold interventionist beliefs base their instructional practice. Further, they are broadly applicable to learners with diverse learning needs, *irrespective of the nature of their differences*.

Maria reflects,

> I always thought I didn't want them to read the story ahead because they'd get bored. Now I'm finding that the more they read it, the better! 'Let's read it all together first so that you are so familiar with that story that by the time you actually look at those picture symbols, you're already predicting!' I don't know

> why I wasn't thinking that way because it fits with the exact normal! I was trying to lead them through the story to structure them more. Now I want them to play with it a bit (Interview, Maria, April 19).

'It fits with the exact normal'. Maria's teaching experiences and developing knowledge cause her to re-consider her beliefs about how students who use AAC become literate. Despite their significant barriers, students who use AAC require the same literacy experiences which are considered to be practices appropriate for non-disabled students. In this particular example that means opportunities for repeated readings, for predicting, and independently exploring texts.

The disabilities experienced by Maria's students do not overshadow the fact that for Maria, her students are students, first. Moreover, their disabilities do not preclude having high expectations for their achievement, providing an authentic and meaningful context for learning, teaching concepts and skills directly within meaningful context, engaging them in the very skills which are being taught: communication, reading, and writing and all-the-while providing opportunities to experience independence. Thus, through Maria's teaching we gain an understanding of the inherent *capabilities* of her students.

Concluding Comments

In summary, this study reconciles the theoretical and practical knowledge of teaching by providing access to the cognitive world of an exemplary teacher (Ethell & McMeniman, 2000). We have provided an in-depth and highly detailed analysis of the knowledge, beliefs and teaching practices of a "mindfully vigilant" educator (Meichenbaum & Biemiller, 1998). Our account reveals the reasons or "habits of mind" (Duffy, 1999) that underlie the nature of one teacher's practice with students who use AAC. The complexity of teaching is further

substantiated, revealing the multi-dimensional, interdependent, and dynamic nature of teacher beliefs, knowledge, and practices. Through the particulars of Maria's teaching practices, we have depicted the pivotal role of teacher beliefs in informing teaching practices and further developing teacher knowledge. We have argued that the interventionist nature of her beliefs provide her with in-depth knowledge of her students' characteristics, needs, and achievements. This category of teacher knowledge is particularly critical to the development of Maria's pedagogical-content knowledge. Indeed, it is critical to the effectiveness of Maria's teaching. Knowledge of her students' characteristics and needs informs Maria's teaching. This knowledge provides her with the information needed to calibrate her instruction to meet the needs of her students. Ultimately, the "interventionist" nature of Maria's teaching reveals her students' competencies demonstrating that, notwithstanding their unique characteristics and significant barriers to communicating and learning, students who use AAC benefit from the teaching practices which are generally known to effectively support student achievement.

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